



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/670,356	09/26/2003	Mutsuko Hatano	520.39728VX1	5271
20457	7590	12/05/2005	EXAMINER	
ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-3873			NGUYEN, TUAN H	
			ART UNIT	PAPER NUMBER
			2813	

DATE MAILED: 12/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

✓

Office Action Summary	Application No.		Applicant(s)	
	10/670,356		HATANO ET AL.	
	Examiner		Art Unit	
	Tuan H. Nguyen		2813	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16, 17, 19, 21, 23 is/are allowed.
- 6) ☒ Claim(s) 1-15, 18, 20 and 22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Allowable Subject Matter

The indicated allowability of claim 18 is withdrawn in view of the newly discovered reference(s) to Grigoropoulos et al.. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-9, 13-15, 18, 20, 22 are rejected under 35 U.S.C. 102(e) as being anticipated by Grigoropoulos et al. (U.S. 6,451,361).

Grigoropoulos et al., figs. 1-13 and related text on col. 1-12 discloses the claimed method for producing an image display device including a thin film transistor comprising growing semiconductor crystal grains in a transverse direction in a semiconductor film by modulating a continuous wave laser in time into a pulse laser beam, and irradiating it on the semiconductor film (as shown in figs. 1-7 and related text on col. 1-5).

With respect to claims 1, 18, 22, see particularly fig. 12 and related text on col. 8 for a process for producing an TFT in image display device including a channel region

Art Unit: 2813

1206 formed in the semiconductor film between the first and second charge transmitting and receiving means 1202, 1204 wherein the semiconductor film is essentially comprised of crystal grains having an axis in a longitude direction of 45° or less with respect to a direction F for connecting the first and second charge transmitting and receiving means in the channel region 1206 by growing semiconductor crystal grains in a transverse direction in a semiconductor film by modulating a continuous wave laser in time into a pulse laser beam, and irradiating it on the semiconductor film.

With respect to claim 2, see fig. 12 and text on col. 8, lines 50-60 for the scan direction.

With respect to claims 3, 4, col. 9, lines 44-46 disclose the use of laser beam to transform the semiconductor material which inherently includes amorphous silicon or polysilicon.

With respect to claims 5-7, see col. 5, lines 37-40, col. 11, lines 12-14 for the pulse width and pulse density of the pulse laser beam.

With respect to claims 8-9, figs. 3A-3B show pulse shapes and beam intensity; figs. 9, 10A-10 and text on col. 6 for the modulation according to an external voltage of a continuous wave Ar⁺ laser 132 in time into a pulsed laser beam.

With respect to claims 13-14, fig. 12 shows the scan direction, and the crystal grain are grown in a strip shape following the direction of the scan.

With respect to claim 15, the charge transmitting and receiving means are source and drain regions 1202, 1204 of the thin film transistor as shown in fig. 12, and text on col. 8.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grigoropoulos et al. (U.S. 6,451,361).

Grigoropoulos et al., figs. 1-13 and related text on col. 1-12 disclose substantially the claimed method for producing an image display device except silent about the kind of laser device and alignment pattern. Note on col. 11, third paragraph for the suggestion of beam alignment.

Since laser source such as solid state laser device or laser diode, and mark alignment are well-known and commercial available, it would have been obvious to those skilled in the art at the time the invention was made to have used solid state laser device as a laser beam source for modulating the continuous wave into the pulsed laser beam, and alignment pattern for irradiating the semiconductor thin film as disclosed by Grigoropoulos et al. in order to improve the crystallinity, uniformity, repeatability of the crystallized thin film.

Allowable Subject Matter

Claims 16, 17, 19, 21, 23 are allowed.

Response to Arguments

Applicant's arguments with respect to claims 1-15, 20 have been considered but are moot in view of the new ground(s) of rejection.

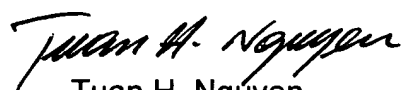
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan H. Nguyen whose telephone number is 571-272-1694. The examiner can normally be reached on 9AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead Jr. can be reached on 571-272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Application/Control Number: 10/670,356
Art Unit: 2813

Page 6

A handwritten signature in black ink, reading "Tuan H. Nguyen". The signature is written in a cursive, flowing style with a large initial 'T'.

Tuan H. Nguyen
Primary Examiner
Art Unit 2813